The collecting history and distribution of Dusky Friarbird *Philemon fuscicapillus* (Morotai, Indonesia) elucidated from museum data

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Summary.—A comprehensive search of ornithological collections throughout the world yielded a total of 75 specimens of Dusky Friarbird *Philemon fuscicapillus*, a Vulnerable species, held in 25 museums. This represents 48 additional specimens to those already known. The history of this material is discussed. Five collectors were identified: C. Allen, H. A. Bernstein, J. M. Dumas, A. Hueting and G. A. L. Haan. The 18 collected by Charles Allen on behalf of Wallace are syntypes. All 70 documented specimens are from Morotai. There is no historical proof of the presence of the species on Halmahera or Bacan, despite that these islands are frequently considered part of the species' range.

Natural history collections are important sources of data on avian distribution and ecology (Green & Scharlemann 2003). For some poorly known species, museum data, often unpublished (Collar & Rudyanto 2003), can yield precise details (Haffer 2003). The genus *Philemon* Vieillot, 1816, comprises 16 species (Higgins *et al.* 2008) found in Wallacea, New Guinea, the Bismarcks, Australia and New Caledonia. One of the seven species in Wallacea, Dusky Friarbird *P. fuscicapillus* (Wallace, 1862) is the only *Philemon* considered globally threatened, listed as Vulnerable (www.birdlife.org/datazone/speciesfactsheet.php?id=5319). An enigmatic species (BirdLife International 2001), knowledge even of its distribution is incomplete, although since Gray (1869) *P. fuscicapillus* has been generally presumed to occur on three of the northern Moluccas, namely Morotai, Halmahera and Bacan. However, as noted by Stattersfield & Capper (2000), BirdLife International (2001, 2004) and Higgins *et al.* (2008) historical data are available only from the first island, recent observations from the second (Fuller s.d., Poulsen & Lambert 2000, Jahraus 2005, Dashper 2009) and there is no real evidence that it occurs on the third (Hartert 1903, Lambert 1994). N. J. Collar, the principal author of BirdLife International (2001), examined 26 specimens. Stattersfield & Capper (2000), BirdLife International (2001, 2004) and Higgins *et al.* (2008) specify that the bird's ecology is little known. An additional problem is that Dusky Friarbird can be confused with the mimetic Dusky-brown Oriole *Oriolus phaeochromus* G. R. Gray, 1861 (Diamond 1982); photographs of both species are available at http://orientalbirdimages.org/. My objective was to use specimens and other archives to clarify the collecting history and distribution of this friarbird.

Material and Methods

The following abbreviations are used. AMNH: American Museum of Natural History, New York (USA); ANSP: Academy of Natural Sciences of Philadelphia (USA); BMNH: Natural History Museum, Tring (UK); BOUM: Muséum d'Histoire Naturelle de Bourges (France); CU: Cornell University, Ithaca (USA); CUMZ: University Museum of Zoology, Cambridge (UK); eBEAC: electronic Bulletin for European Avian Curators; FMNH: Field Museum of Natural History, Chicago (USA); GBIF: Global Biodiversity Information Facility; ICOM: International Council of Museums; LivCM: Liverpool Museum (UK);

MCZ: Museum of Comparative Zoology, Harvard (USA); MH: Museum Heineanum, Halberstadt (Germany); MHNMON: Muséum d'Histoire Naturelle de Montauban (France); MZPW: Museum and Institute of Zoology, Polish Academy of Sciences, Warsaw (Poland); MNHN: Muséum National d'Histoire Naturelle, Paris (France); MZB: Museum Zoologicum Bogoriense, Java (Indonesia); NCB Naturalis: Netherlands Centre for Biodiversity Naturalis, Leiden (Netherlands); NHColl-L: Natural History Collections Listserver; NMNH: National Museum of Natural History, Washington DC (USA); NMW: Naturhistorisches Museum, Wien (Austria); NRM: Naturhistoriska Riksmuseet, Stockholm (Sweden); OB: Oriental Birding; ORNIS: Ornithology Information System; OUM: Oxford University Museum (UK); RMNH*: Rijksmuseum van Natuurlijke Historie, Leiden (Netherlands); SDM: Darwin Museum, Moscow (Russia); SMF: Senckenberg Museum Frankfurt (Germany); SNMBG: Staatliches Naturhistorisches Museum, Braunschweig (Germany); UMB: Überseemuseum, Bremen (Germany); YIO: Yamashina Institute for Ornithology, Tokyo (Japan); ZMA*: Zoölogisch Museum, University of Amsterdam (Netherlands); ZMB: Museum für Naturkunde, Zentralinstitut der Humboldt-Universität, Berlin (Germany). * = all now held at Naturalis (NCB). Specimens are referred to by their current registration number. Names of islands follow White & Bruce (1986).

Search for specimens.—This commenced at BMNH because this is where Alfred Russel Wallace, who described the species, sent his collections (Baker 2001). Online databases (e.g., GBIF and ORNIS) were then consulted. To widen the search, 423 institutions on five continents were contacted, using Wood *et al.* (1982), White & Bruce (1986), Wood & Schnell (1986), Mearns & Mearns (1998), Roselaar (2003) and ICOM. Finally calls for contributions were issued on internet fora (NHCOLL-L, eBEAC, OB). All details can be obtained on request from the author.

Documentation.—Collecting data are no longer available for many specimens and information on their labels is often insufficient or fragmented (Fisher & Warr 2003). Consequently, for such a little-known species as Dusky Friarbird it was necessary to make the best possible use of all specimens. Where possible, the labels on each specimen were compared with collection records to avoid problems of the type mentioned by Rasmussen & Prŷs-Jones (2003). Conversely, the few published facts (localities, dates, collectors) were verified using the specimens.

Curators often recognise specimens from certain collectors by their preparation style (M. Portas & C. Fisher pers. comm.) but very little has been published on this, usually in respect to a few specific cases, e.g., John Gilbert (Fisher 1992). This method of identification must be used cautiously as collectors were numerous at the end of the 19th century and could produce similar specimens despite some variation. However, in dealing with specimens of the same species, as here, direct observation or photographs permit similarities in preparation to be readily appreciated. Given that the specimens come from a well-defined region worked by a small number of collectors, such comparison is pertinent. Knowledge of the collector's identity enables us to access relevant historical records (Fisher & Warr 2003) and to determine the collecting date.

As preparation technique provides just one indication of the collector's identity, it was always used in conjunction with other data such as the specimen's origin, handwriting and terms used on the labels, or the specimen's date of entry into the relevant collection. Descriptions were made from specimens for which the collector is clearly authenticated by the label. Birds mounted and reprepared as flat skins are not included, as this leaves no indication of the original method of preparation.

Results

In addition to the information available in the GBIF and ORNIS databases, I was able to check for the presence of Dusky Friarbird specimens in 272 collections of the 423 contacted. Seventy-five specimens were found in 25 institutions, of which photographs of 63 were obtained. The specimens occur as follows: Europe 58 (Austria: three, France: ten, Germany: seven, Netherlands: 20, Poland, Russia and Sweden: one each, UK: 15); North America 11 (all USA); and Asia six (Indonesia: five, Japan: one). They were collected in 1860, 1861, 1898, 1912, 1938 and 1950. Seventy were collected on Morotai and five possess no locality or collector information. Of the 75, 56 are clearly linked to one of the following five collectors: A. R. Wallace, H. A. Bernstein, J. M. Dumas, A. Hueting and G. A. L. de Haan. No specimens exist from Halmahera or Bacan. The material comprises 49 skins and 26 stuffed birds (eight of them reprepared as flat skins). No tissues appear to have been preserved (Wood *et al*. 1982, Wood & Snell 1986; pers. obs.) or eggs. The only accessible bones are the skulls and limbs of specimens. A few notes on gonadal development are available, but nothing concerning stomach contents.

Discussion

Full details of the Dusky Friarbird specimens are presented in Table 1. The total number of specimens found (75) is relatively small for an extant species.

Collectors.—Ornithological exploration of the Moluccas is well known (Junge 1953, White & Bruce 1986). Only three collectors appear to have worked on Morotai: Charles Allen, Heinrich A. Bernstein and Gunter A. L. de Haan. Lendon (1946), Christian (1950) and missions by the FAO in 1975–81, mentioned by White & Bruce (1986), did not collect specimens. The Snellius Expedition 1929–30 (van Riel 1937) studied only oceanic, not terrestrial, fauna. However, information provided by specimens in the present study, permits the addition of three names: Joannes Maximiliaan Dumas, Anton Hueting and, curiously, Alfred R. Wallace. Indeed, Wallace visited Halmahera in March and September 1858, and again in 1860 for a few days without collecting, but never Morotai (Wallace 1862, 1869). The species' first recorded collector is thus Allen, Wallace's young assistant who he mentioned by name. Allen's collections on Morotai were made from mid-October 1860 to mid-March 1861 (Baker 1995, 2001). Being their true owner, Wallace labelled them himself. Wallace (1869) considered the species endemic to Morotai.

Bernstein, a doctor on Java, made nine expeditions in 1860–65, following a route through the Malay archipelago very similar to that of Wallace, and sent 4,645 Indonesian birds to Leiden (Finsch & Martens 1866, Wallace 1869, Jansen 2008). Details are given by Jansen (2008). Some errors are associated with his Morotai friarbirds. Firstly, the collection date of a female, 14 November 1861, cannot be correct as on this date he was on Halmahera. It was perhaps taken on 14 December 1861, on which date he definitely was on Morotai (corroborated by other specimens). Secondly, a mounted specimen is clearly dated 3 September 1862, yet Bernstein was far to the south on Obi from 17 July to 2 September 1862 and on Bacan on 9–18 September 1862 (dates corroborated by specimens taken, for example, on Obi on 27 August 1862 and Bacan on 11 September: Hoek Ostende *et al*. 1997: 32, 187). Consequently, 3 September 1861 is much more plausible, as his presence on Morotai is corroborated by other specimens taken there on the same day. Nothing suggests that the locality is incorrect. Thirdly, a transcription error exists for BMNH 1879.4.5.1380 (collected 29 September 1861). This date is clearly given on the specimen's label, but was transcribed 22 September by Gadow (1884: 279). None of Bernstein's Dusky Friarbird specimens is from Halmahera or Bacan, despite frequent visits to these islands.

TABLE 1

List of Dusky Friarbird *Philemon fuscicapillus* specimens in collections. Data in square brackets are from field collector labels. If the collector's name is not included in brackets with other data, he has been identified using handwriting. Wallace labels are attributed to him despite that the collector was Allen (see text). Data in round brackets are from the labels or documents of a merchant, curator or private collection. Information in braces is from museum labels. Data preceded by an oblique represent information or corrections emanating from the present work. Superscript numbers as follows: ^{1} = Heine & Reichenow (1882); ^{2} = Gadow (1884); ^{3} = Tristram (1889); ^{4} = Sharpe (1906); ^{5} = Warren & Harrison (1971). Specimens in *italics* are those consulted by previous studies including BirdLife International (2001). Other information is that of the museum.

Institution plus registration no., where available	Method of conservation	Date of accession	Institution, collection, naturalist merchant and/or previous number	Field collector and collecting number	Age	Sex	Collection date	Locality	Status
AMNH 697220	Skin		(Rothschild Mus.)	(Dumas coll.)			/Late 1898	(Morty I.)	
AMNH 697221	Skin		(Rothschild Mus.)	(Dumas coll.)			/Late 1898	(Morty I.)	
AMNH 697222	Skin		(Rothschild Mus.)	(Dumas coll.)			/Late 1898	(Morty I.)	
AMNH 697223	Skin		(Rothschild Mus.)	(Dumas coll.)			/Late 1898	(Morty I.)	
AMNH 697224	Skin		(Rothschild Coll.)	/C. Allen?			/1860 or 1861?	/Morotai?	/Syntype?
AMNH 8079	Mount							{Insel Morotai}	
ANSP 18469	Mount							{Morotai}	
BMNH 1862.9.11.22^{2,4}	Skin	1862	{purch. Stevens}	{leg C. Allen. Wallace Coll.}			/1860 or 1861	{Morty I., Moluccas}	{Syntype}
BMNH 1862.9.11.23^{2,4}	Skin	1862	{purch. Stevens}	{leg C. Allen. Wallace Coll.}			/1860 or 1861	{Morty I., Moluccas}	{Syntype}
BMNH 1873.5.12.1010^{2,4,5}	Skin	1873	{Wallace Coll. (purchased)}	[Wallace]/C. Allen			[1861]	[Morty I.]	{Syntype}
BMNH 1879.4.5.1380^{2,4}	Skin	1879	{F. D. Godman & O. Salvin} {Leiden Mus.} [Kist 15]	[Bernstein]		[♂]	[29 Sep 1861]	[Morotai]	
BMNH 1888.7.1.856^{4}	Skin	1888	{leg C. Allen. Wallace Coll. Tweeddale Coll.} (Tw. C.)	[Wallace] {Allen}		[♂]	[1861]	[Morty I.]	{Syntype}
BMNH 1888.7.1.857^{4}	Skin	1888	Tweeddale Collection (Tw. C.)	[Wallace]/C. Allen	[Juv.]		[1861]	[Morty Island]	{Syntype}
BMNH 1900.2.8.18^{4}	Skin	1900	Gerrard	{G. Dumas}/J. M. Dumas			/Late 1898	[Morty I^{d}]	
BMNH 1900.2.8.19^{4}	Skin	1900	Gerrard	{G. Dumas}/J. M. Dumas			/Late 1898	[Morty I^{d}]	
BMNH 1969.30.17	Skin	1969	{Hewitt Coll.}	[Wallace 1362]/C. Allen			[1860]	[Morty I.]	{Syntype}

Institution plus registration no., where available	Method of conservation	Date of accession	Institution, collection, naturalist merchant and/or previous number	Field collector and collecting number	Age	Sex	Collection date	Locality	Status
BMNH 1969.41.1216	Skin	1969	{Hewitt Coll.}	/J. M. Dumas			/Late 1898	[Morty I^{d}]	
BMNH 1969.41.1217	Skin	1969	{Hewitt Coll.}	/J. M. Dumas			/Late 1898	[Morty Id.]	
BOUM 12.Mél.31	Mount	1929	Coll. Maës (N°1600)					(Morotai)	
CU 9482	Skin	Before 1940		/J. M. Dumas?			/Late 1898?	/Morotai?	
LivCM T1384[3]	Skin	1896	Tristram Coll.	[Wallace]/C. Allen			[1861]	[Morty I.]	/Syntype
MCZ 39598	Skin	(1899)	/Otto Finsch, RMNH	(J. M. Dumas)			(1898)/Late 1898	(Morotai)	
MH 3091[1]	Skin	Between 1861 and 1882	{Coll. Ferdinand Heine}, obtained from {G. A. Frank}	/H. A. Bernstein			/1861	{Morty Insel.}	
MH 3092[1]	Skin	Between 1861 and 1882	{Coll. Ferdinand Heine}	[Wallace]/C. Allen			[1861]	[Morty I.]	/Syntype
MHNMON-O-1361	Mount	1 Mar 1876	Coll. Victor Brun {48512}			(♀)		{Morotaï}	
MZPW 17928[4]	Mount	1874	(Branicki), ex BMNH 18[73.5.12.1009]	[Wallace]/C. Allen			[1861]	[Morty I.]	/Syntype
MNHN 1873.358	Skin	[1873]	Obtained from Mme Verdey [Coll. Verreaux, N°15]	[Bernstein]		[♀]	[29 Aug 1861]	[Morotai]	
MNHN 1873.359	Skin	[1873]	Obtained from Mme Verdey [Coll. Verreaux, Kist N°15]	[Bernstein]		[♀]	[31 Aug 1861]	[Morotai]	
MNHN 1875.356	Skin	1875	Donated by Pr. Schlegel	/H. A. Bernstein		(♀)	/1861 or 1863?	(Morotai)	
MNHN 2000.1252	Skin	Before 1894	(Mus. Boucard)	/H. A. Bernstein			/1861 or 1863?	/Morotai	
MNHN 2000.1253	Skin		(Mus. Boucard)	(Wallace)/C. Allen			/1860 or 1861	(Morty Isl.)	/Syntype
MNHN 2000.1254	Skin		(Mus. Boucard)	(Wallace)/C. Allen			/1860 or 1861	(Morty Isl.)	/Syntype
MNHN 1864.350	Mount	1864	Exchange with Parzudaki					{Morotai}	
MNHN 1866.400	Mount	1866	Exchange with Ed. Verreaux	/H. A. Bernstein?		♂	/1861?	{Morotai}	
MZB.Ornit.8883	Skin		[n°46]	[de Haan]		[♂]	[10 Mar 1938]	[Wajaboela Eil. Morotai]	
MZB.Ornit.8884	Skin			G. A. L. de Haan			11 Mar 1938	Morotai	

Institution plus registration no., where available	Method of conservation	Date of accession	Institution, collection, naturalist merchant and/or previous number	Field collector and collecting number	Age	Sex	Collection date	Locality	Status
MZB.Ornit.8885	Skin		[n°50]	[de Haan]		[♂]	[11 Mar 1938]	[Wajaboela Eil. Morotai]	
MZB.Ornit.8886	Skin		[n°94]	[de Haan]		[♂]	[21 Mar 1938]	[Wajaboela Eil. Morotai]	
MZB.Ornit.8887	Skin		[n°125]	[de Haan]		[♀]	[30 Mar 1938]	[Pilowo Eil. Morotai]	
NRM 570190	Mount	1864, but noted {1866}	G. A. Frank NHR{14132}			{♀}		{Morotai}	
NMW.52.358	Mount	17 May 1863	From H. Schlegel, Leiden Mus.	[Bernstein]		♀	[24 Aug 1861]	Morotai	
NMW.52.359	Mount	17 May 1863	From H. Schlegel, Leiden Mus.	[Bernstein]		[♂]	[26 Aug 1861]	[Morotai]	
NMW.43.842	Mount	17 May 1863	From H. Schlegel, Leiden Mus.	H. A. Bernstein		♀	17 Sep 1861	Morotai	
OUM 12482	Skin	1950	{C. M. N. White Coll.}	/J. M. Dumas			/Late 1898	[Morty I^{d}]	
OUM 15207	Skin	9 Dec 1969	(E. Gerrard, Jun.) From the collections of the British Trust for Ornithology, Tring, 1969: presented by Dr C. M. Perrins, Edward Grey Institute, Oxford	/C. Allen?			/1860 or 1861?	/Morotai?	/Syntype?
RMNH 134523	Skin	{20 Nov 1915}	Register: 3713 [Kist 15]	[Bernstein]		[♀]	[20 Dec 1861]	[Morotai]	
RMNH 134524	Skin	{4 May 1912}	Register: 2479	{A. Hueting}			1912	{Morotai}	
RMNH	Mount			H. A. Bernstein		♂	25 Aug 1861	Morotai	
RMNH	Mount			H. A. Bernstein		♀	27 Aug 1861	Morotai	
RMNH	Mount			H. A. Bernstein		♂	30 Aug 1861	Morotai	
RMNH	Mount			H. A. Bernstein		♀	1 Sep 1861	Morotai	
RMNH	Mount			H. A. Bernstein		♂	3 Sep 1861	Morotai	
RMNH	Mount			H. A. Bernstein		♂	7 Sep 1861	Morotai	
RMNH	Mount			H. A. Bernstein		♀	13 Sep 1861	Morotai	
RMNH	Mount			H. A. Bernstein		♀	1 Oct 1861	Morotai	
RMNH	Mount			H. A. Bernstein		♀	14 Nov 1861 / 14 Dec 1861?	Morotai	
RMNH	Mount			H. A. Bernstein		♀	14 Dec 1861	Morotai	

Institution plus registration no., where available	Method of conservation	Date of accession	Institution, collection, naturalist merchant and/or previous number	Field collector and collecting number	Age	Sex	Collection date	Locality	Status
RMNH	Mount			{Bernstein}		{♂}	{18 Dec 1861}	{Morotai}	
RMNH	Mount			H. A. Bernstein		♀	28 Dec 1861	Morotai	
RMNH	Mount			H. A. Bernstein		♂	3 Sep 1862 / 3 Sep 1861	Morotai	
SDM 6629-2086	Skin	1913	Purchased by A. F. Kots from W. F. H. Rosenberg (Mus. Boucard 6629-2086) [211]	Wallace/C. Allen			/1860 or 1861	[Morty I.]	/Syntype
SMF 49871	Skin	1916	Coll. von Berlepsch	[Wallace]/C. Allen		[♀]	[1861]	[Morty I.]	/Syntype
SNMBG 3629	Skin	1918	{Coll. Nehrkorn n°3629}	/C. Allen			/1860 or 1861	{Morty Ins. Moluccen}	/Syntype
UMB 8254	Skin	{1866}	{8254 Coll. Bernstein. Leiden Mus.}	{Bernstein}		{♀}	{19 Sep 1861}	{île Morotai}	
UMZC 27/Mel/28/j/1[5]	Skin		Wallace	[Wallace 1363]/C. Allen			[1861]	[Morty I.]	{Syntype}
USNM 148446	Skin	Mar 1896	(Mus. Boucard)	(Wallace)/C. Allen			/1860 or 1861	(Morty Isl.)	/Syntype
USNM 178136	Skin	(1899)	/Otto Finsch, RMNH	(J. M. Dumas)			(1898)/Late 1898	(Morotai)	
YIO 50381	Skin		(Mus. Boucard)/W. F. H. Rosenberg n°28871	[Wallace]/C. Allen		[♂]	[1861]	[Morty I.]	/Syntype
ZMA 8936	Skin	1950	Coll. G. A. L. de Haan 1266	[G. A. L. de Haan]	Juvenile	♀	[22 May 1950]	[BMP Camp, Island Morotai]	
ZMA 25377	Skin	Oct 1894	Colonial Institute KM 1131[Coll. Moraux & Co., Makassar]	/H. A. Bernstein	Adult	♀	/1861 or 1863 ?	{Morotai}	
ZMA 48200	Skin	1979	Coll. G. A. L. de Haan 1234 ex. (Sillem-Van Marle 1200)	[G. A. L. de Haan]	[Adult]	[♂]	[24 Apr 1950]	[BMP Camp, Island Morotai]	
ZMA 48201	Skin	1979	Coll. G. A. L. de Haan 1243 (Sillem-Van Marle 1201)	[G. A. L. de Haan]	Adult	♀	[1 May 1950]	[BMP Camp, Island Morotai]	
ZMA 48202	Skin	1979	Coll. G. A. L. de Haan 1265 (Sillem-Van Marle 1202)	[G. A. L. de Haan]	Juvenile	♂	[22 May 1950]	[BMP Camp, Island Morotai]	
ZMB 21553	Mount		(Grrd) = Gerrard	{Wallace}/C. Allen		{♂}	/1860 or 1861	{Morty-Ins.}	{Syntype}
ZMB 2000.13881	Mount								

Dumas accompanied Alfred H. Everett's visit to the Moluccas (Sharpe 1906, LeCroy & Jansen 2011). When Everett died, Dumas continued, visiting several islands including Buru and Morotai, but not Halmahera or Bacan, and his Dusky Friarbirds were exclusively collected on Morotai towards the end of 1898 (LeCroy & Jansen 2011). He also took at least two entomological specimens on the island in November 1898 (Rothschild 1908: 174).

The Dutch missionary and ethnographer Hueting worked around Tobelo, Halmahera, between 7 August 1896 and 1934. Though he lived mainly on Halmahera and the only specimen of the friarbird that he collected (in 1912) was one of a batch of 97 skins of 37 species from 'Halmahera' sent to RMNH, it originated from Morotai (based on the label).

The Dutch collector de Haan made several expeditions in the Moluccas (van Bemmel & Voous 1953, White & Bruce 1986), in 1938 and around 1950. His friarbird specimens are very well documented and are all from Morotai; they were collected during both periods.

The five collectors mentioned above are probably the only ones to have visited Morotai (Junge 1953, White & Bruce 1986, Fransen *et al*. 1997, Hoek Ostende *et al*. 1997, Dekker 2003, Dekker & Quaisser 2006; AMNH, BMNH, FMNH, GBIF, MCZ, MNHN, ORNIS, USNM and YIO online databases). None of the specimens was collected on Halmahera, which island all of these collectors explored, with the notable exception of Dumas (LeCroy & Jansen 2011), or on Bacan. Similarly, collections made on Halmahera and Bacan by other collectors (Gray 1860, Guillemard 1885, Nehrkorn 1894, Berlepsch 1901, Hartert 1903, Kuroda 1938, 1939, Kuroda 1957, Ripley 1959) did not yield the species, and Hartert (1903) clearly stated that no specimens were collected on Bacan.

The skins and their labels.—Observation, either directly or from photographs, of 48 of the 49 specimens, permits their classification into five batches of homogeneous appearance, clearly associated with each of the five collectors above. Preparation (Fig. 1) and labels (Fig. 2) have permitted clarification or confirmation of the collectors of several Dusky Friarbird specimens. It is highly improbable that any specimen is from any island other than Morotai. Of course, this possibility cannot be entirely excluded as collections could have disappeared since 1860 (see below), but it is very unlikely that specimens taken elsewhere over the course of a century by five collectors of different nationalities would all have disappeared.

Allen's skins have their feet crossed and tied, and their preparation is relatively poor. The bird's neck is often unnaturally long, the bill set almost in line with the body and the feathers are displaced (Fig. 1A). They were stuffed in such a way that the breast bulges and the abdomen is very flat when viewed in profile. Wallace labelled them himself, but was not their actual collector: the ten pre-printed labels completed by hand (Baker 2001) are marked 'Collected by A. R. Wallace. 186.' or 'Collected for A. R. Wallace. 186.' (thereby demonstrating that he employed others). The handwritten data indicates only the year, 1860 or 1861, an English transcription of the locality, 'Morty Is.' or 'Morty Island', and sometimes the sex. Two are numbered, probably by Allen (Fig. 2W). Another of Allen's specimens (SNMB 3629), clearly taken on Morotai, confirms that it was taken in 1860–61. AMNH 697224 and OUM 15207 are unlabelled and the institutions lack any other data that might trace their provenance. Although both specimens strongly resemble Allen's preparations, without deeper analysis (e.g., X-ray) it can be said only that he was probably their collector.

Bernstein's carefully prepared specimens are characterised by a wooden stick in the body's axis (Fig. 3). Their silhouette is quite slender and they have been stuffed homogeneously making them appear almost fresh (Fig. 1B). In all of the specimens definitely collected by Bernstein and preserved as flat skins the stick is not obvious, meaning the feathers must be moved to see it (Fig. 3; MNHN 1873.359). Marks on the tarsi bear witness to the cut-off part of the stick to which the feet were originally attached, probably until arrival in Europe. Only Bernstein's skins possess this feature, which, together with their overall appearance,

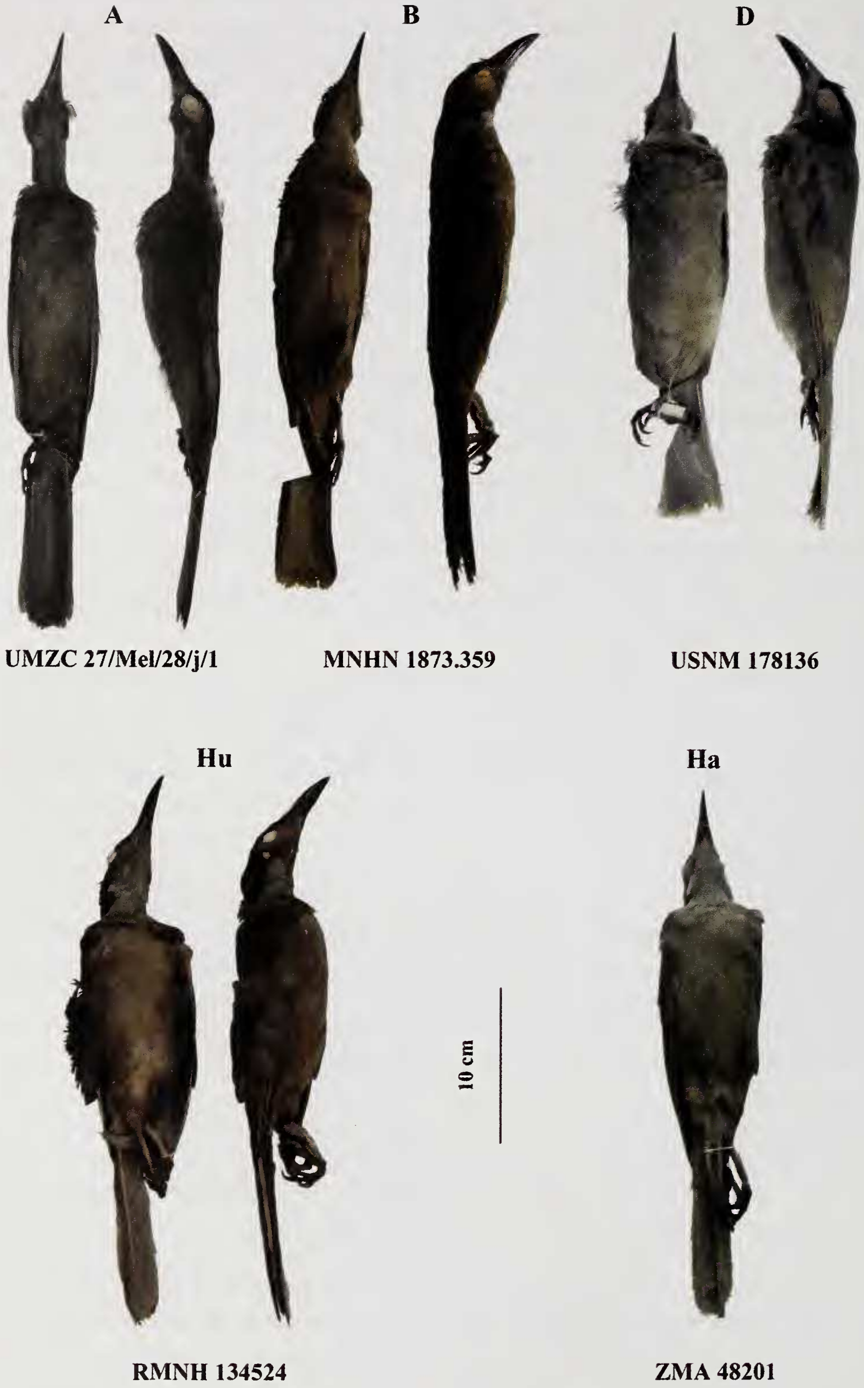


Figure 1. Comparison of Dusky Friarbird *Philemon fuscicapillus* specimens taken by the five collectors. A: Charles Allen skin, face and profile (Michael Brooke, © Cambridge University Museum of Zoology); B: Bernstein skin, face and profile (Ludovic Besson, © Muséum National d'Histoire Naturelle, Paris); D: Dumas skin, face and profile (James Dean, © National Museum of Natural History, Washington DC); Hu: Hueting skin, face and profile, (Eelco Kruidenier, © NCB Naturalis); Ha: de Haan skin, face (Tineke Prins, © Zoologisch Museum, University of Amsterdam).

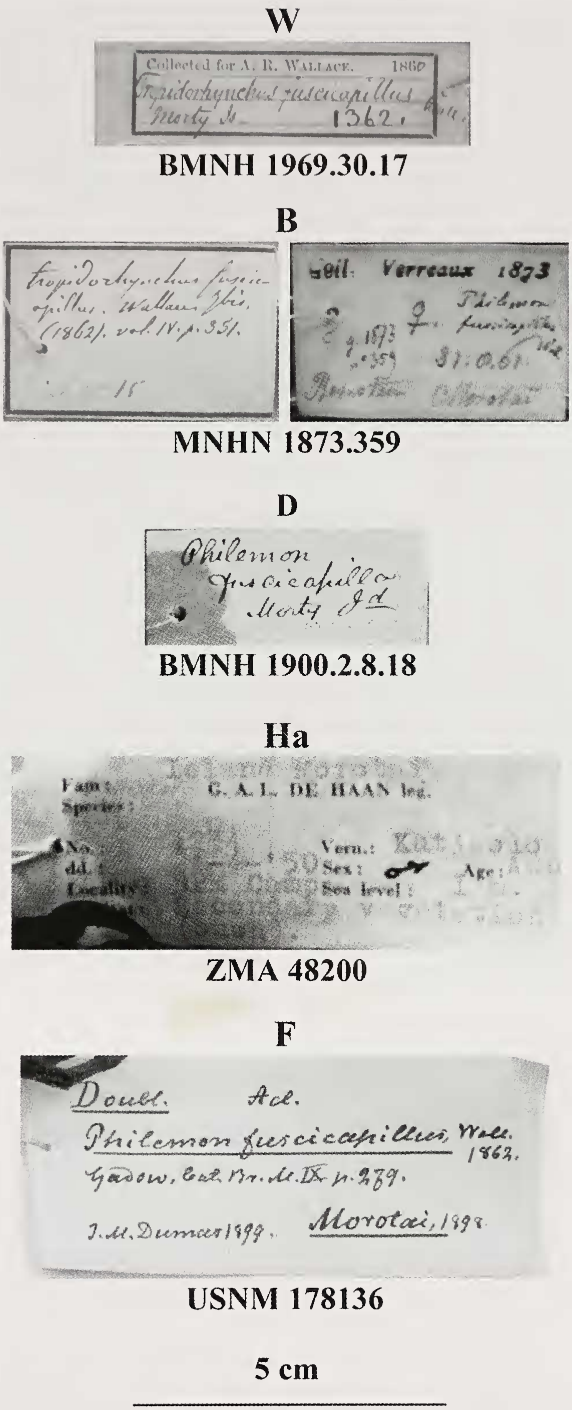

W
Collected for A. R. Wallace. 1860
Tropidorhynchus fuscicapillus
Morty Is. 1362.
BMNH 1969.30.17
B
tropidorhynchus fuscicapillus. Wallace Ibis. (1862). vol. IV. p. 351.
15
Verreaux 1873
Philemon fuscicapillus
♀ 1873 n°359
Bernstein
MNHN 1873.359
D
Philemon fuscicapillus Morty Id.
BMNH 1900.2.8.18
Ha
Fam.:
G. A. L. DE HAAN leg.
Species:
No.:
dd.:
Locality:
Vern.:
Sex: ♂
Age:
Sea level:
ZMA 48200
F
Doubl. Ad.
Philemon fuscicapillus, Wall. 1862.
Gadow, Cat. Br. M. IX p. 279.
J. M. Dumas 1899.
Morotai, 1898
USNM 178136
5 cm

Figure 2. Examples of labels attached to Dusky Friarbird *Philemon fuscicapillus* specimens. W: Wallace (Hein van Grouw, © Natural History Museum, Tring); B: Bernstein, back and front (Ludovic Besson, © Muséum National d'Histoire Naturelle, Paris); D: Dumas (Hein van Grouw, © Natural History Museum, Tring); Ha: de Haan (Tineke Prins, © Zoologisch Museum, University of Amsterdam); F: Finsch (James Dean, © National Museum of Natural History, Washington DC).

permits their certain identification. His handwritten labels, often with a black border on one side, regularly feature the name of the island in Dutch ('Morotai'), the precise date (day, month and year) and the sex. Occasionally, the number of the box in which it was sent to Europe ('Kist' in Dutch) also appears (Fig. 2B). MH 3091 lacks a label. It was mentioned in 1882 by Heine & Reichenow but arrived at MH before then meaning that Dumas, Hueting or de Haan can be excluded. Its general appearance and the presence of a stick identify Bernstein as the collector. In three skins the wooden rod is present, but there are very few data associated with them and the collector's name is missing. Two are strongly linked to the Netherlands: MNHN 1875.356 was given to Paris by Schlegel, the director of RMNH, in 1875 (Fig. 4) and ZMA 25377 arrived in Amsterdam before 1894; both were collected on Morotai. MNHN 2000.1252 came via Boucard. It lacks a date or locality, but must have been taken before 1894 (Anon. 1905). All three were obviously prepared by the same person. Apart from the wooden rod, they are identical to Bernstein's specimens (Fig. 3), but doubt remains concerning their collection date. Bernstein visited Morotai again in 1863, which explains why their preparation is slightly different from that of the others.

Dumas' skins are easily recognised, appearing fat and thickset, the head 'sunk' into the shoulders so that the neck seems to disappear. Sometimes there is a thread through

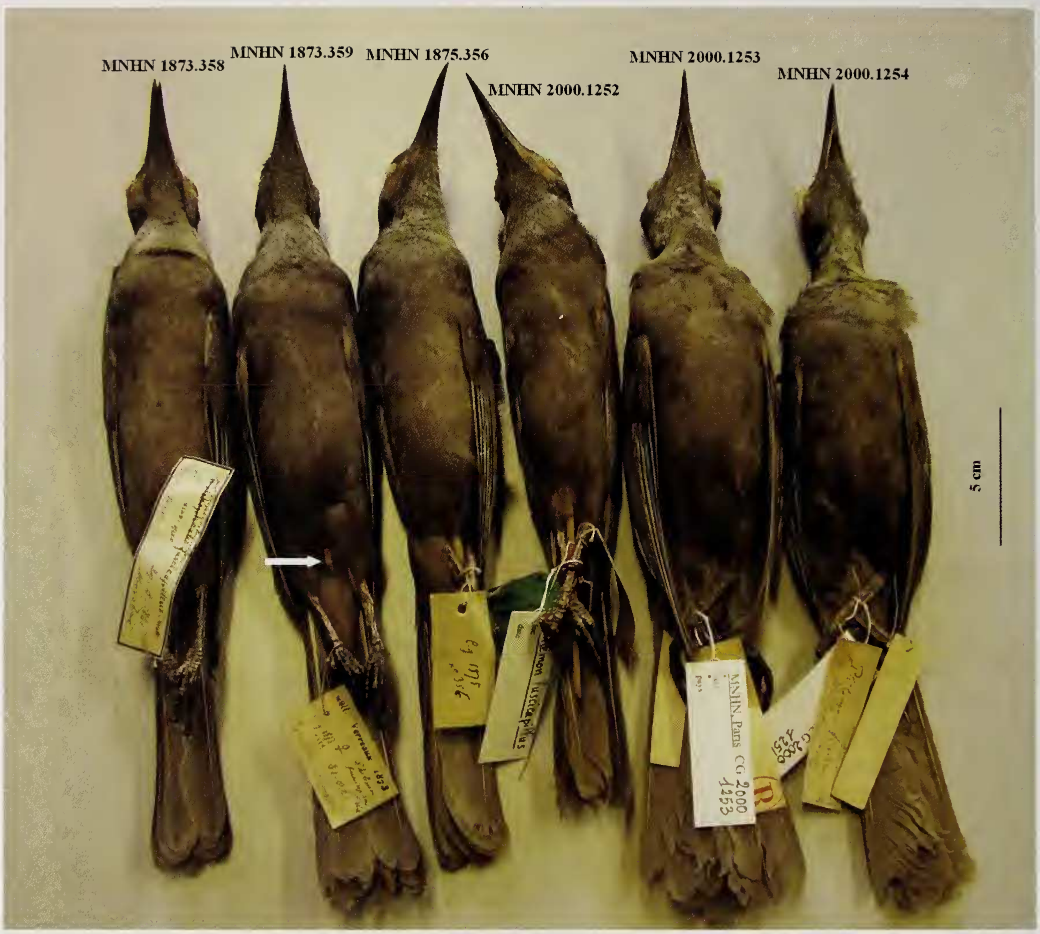
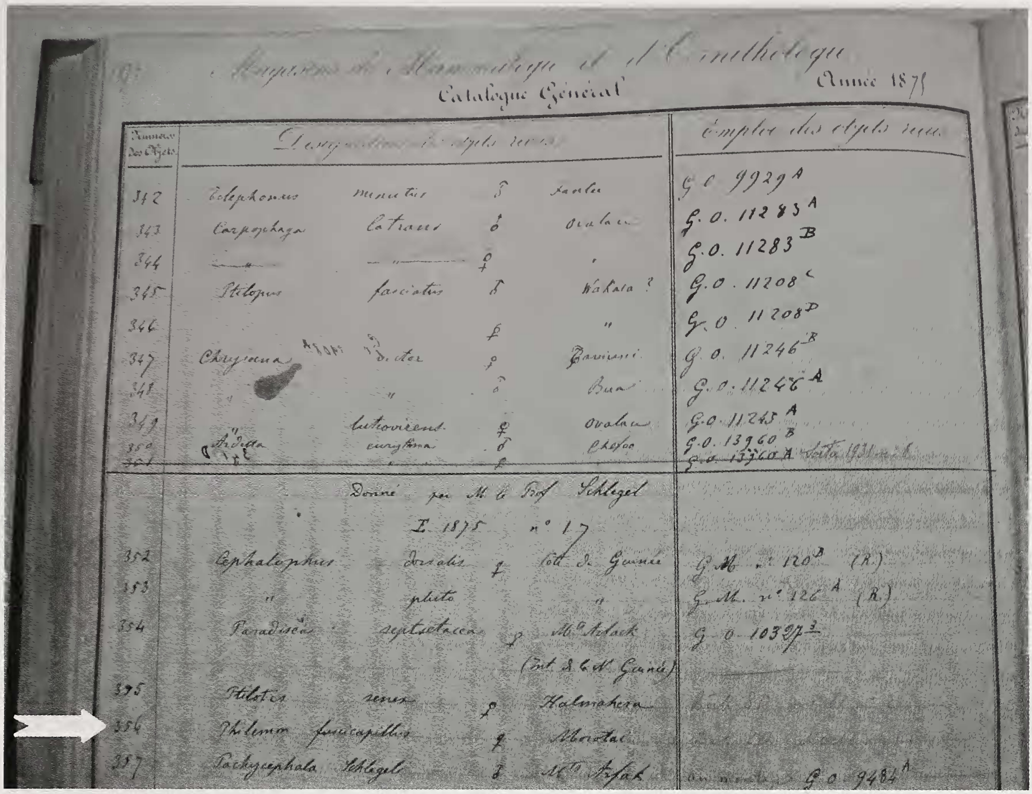


Figure 3. The six Muséum National d'Histoire Naturelle, Paris, specimens in ventral view with, from left to right, two Bernstein specimens (stick broken), two Bernstein specimens (stick intact) and two Wallace specimens (Ludovic Besson, © Muséum National d'Histoire Naturelle, Paris)

the nostrils holding the mandibles together. The feet are crossed and tied (Fig. 1D). They are sometimes labelled '*Philemon fuscicapilla*', with the locality 'Morty Id' in characteristic handwriting (Fig. 2D), although BMNH 1969.41.1217 is erroneously transcribed '*Phileomon fuscicapilla*'. BMNH 1969.41.1216 and OUM 12482 are thickset and are labelled only 'Morty Id'. This label, the handwriting, presence of string binding the beak and general appearance identifies these specimens as being taken by Dumas. For CU 9482, only its preparation permits this attribution as the label is lost, but Dumas was probably the collector.

Hueting's specimen preparation resembles that of Bernstein (Fig. 1Hu) but he collected just one Dusky Friarbird, the label of which is missing.

De Haan's specimens are prepared with a wooden stick through the axis of the body and a thread in the nostrils holding the mandibles together (ZMA 48200; http://ip30.eti.uva.nl/zma3d/detail.php?id=410&sort=alphabet&type=family). They are similar to Bernstein's specimens except that the shoulders are more pronounced and the feet rest parallel to the stick, rather than being crossed over it (Fig. 1Ha). Labelling is precise and, for the ZMA specimens, indicate age (Fig. 2Ha), gonad state and overall length.



Magasins de Mammalogie et d'Ornithologie
Catalogue Général
Année 1875

Numéros des Objets	Désignation des objets reçus				Emploi des objets reçus
342	Telephonus	minutus	♂	[illegible]	G.O. 9929^A
343	Carpophaga	latrans	♂	Ovalau	G.O. 11283^A
344	—	—	♀	"	G.O. 11283^B
345	Ptilopus	fasciatus	♂	Wakaia ?	G.O. 11208^C
346			♀	"	G.O. 11208^D
347	Chrysoena	victor	♀	Taviuni	G.O. 11246^B
348	"	"	♂	Bua	G.O. 11246^A
349		luteovirens	♀	Ovalau	G.O. 11245^A
350	Ardetta	eurythma	♂	Chefoo	G.O. 13960^B
~~351~~			♀		~~G.O. 13960 A~~ [illegible]
	Donné par M. le Prof. Schlegel I. 1875 n° 17				
352	Cephalophus	dorsalis	♀	Côte de Guinée	G.M. n° 120^B (R.)
353	"	pluto		"	G.M. n° 126^A (R.)
354	Paradisea	septsetacea	♀	Mt Arfak (Int. de la N. Guinée)	G.O. 10327^3
355	Ptilotis	senex	♀	Halmahera	
356	Philemon	fuscicapillus	♀	Morotai	
357	Pachycephala	Schlegeli	♂	Mt Arfak	[illegible] G.O. 9484^A

Figure 4. Extract from the Catalogue Général des Entrées Mammifères-Oiseaux, vol. 5, showing the donation of MNHN 1875.356 by Prof. Schlegel (Ludovic Besson, © Muséum National d'Histoire Naturelle, Paris)

Specimen trading.—Dispersion of collections, through sale or exchange, was frequent in the 19th and early 20th centuries. In 1863, an advertisement in *Ibis* offered Dusky Friarbirds from the Wallace collection for 12 shillings. Specimens transited many traders and both public and private collections. Repeated trading often resulted in transcription errors. For example, a batch of 35 birds partly collected by Allen bears the number 1862.9.11,1–35, not 1869.2.11,1–35 as indicated by Sharpe (1906) (Baker 2001). With respect to BMNH 1900.2.8.18–19, Dumas, identified on their labels with the wrong initial 'G' (H. van Grouw pers. comm.), is their collector. Although Sharpe (1906: 285, 361) indicated these specimens as having been collected by Everett, the latter died on 18 June 1898 (Anon. 1898) and therefore could not have visited Morotai at the end of that year.

Trade in material often resulted in labels being replaced and original data being retranscribed. Otto Finsch did this conscientiously (Rasmussen & Prŷs-Jones 2003) with the labels of MCZ 39598 and USNM 178136 exact copies of RMNH specimens (Fig. 2F; handwriting authenticated by H. van Grouw). In contrast, it is well known that the Verreaux brothers noted collecting data with very little accuracy (Mearns & Mearns 1998, Rasmussen & Prŷs-Jones 2003). In the present case, the Maison Verreaux obtained only Bernstein specimens, which are now at MNHN. They bear the collector's original label with the stamp of Maison Verreaux (Fig. 2B), removing any ambiguity. Another specimen from this supplier, perhaps obtained by Wallace and formerly in the Turin museum (Salvadori 1881), is currently lost (M. Calvini & G. Doria pers. comm.). Although Boucard (1876) mentioned that he had duplicate specimens of this friarbird from 'Batchian', none of the six specimens of his that I have located are definitely from this island; five originate from Morotai and the provenance of the other is not specifically stated.

Unlabelled specimens.—Of the eight specimens, some are mounted but others have been reprepared as flat skins. BOUM 12.Mel.31 (http://orientalbirdimages.org/search.php?Bird_ID=1355) is from Albert Maës (1846–1914), a member of the French Zoological Society from 1893 (Blanchard & Caullery 1915, Schæck 1919), who assembled 8,000 birds with elements from most Indonesian islands. None of his specimens bears any indication of being collected by Hueting, who can be excluded, and de Haan was not of the same era. Other collectors must be considered, as some of their specimens passed through institutions and persons who exchanged with Maës.

AMNH 8079 is identified by the original scientific name, *Tropidorhynchus fuscicapillus*. This nomenclature was also used by Bernstein before Gray removed the species to *Philemon* in 1869, and suggests an early origin for this specimen, although the collector cannot be identified with any certainty.

ANSP 18469 formed part of a very early collection and is labelled only with the species' original name and the locality, 'Morotai'. A second label states '*Microphilemon fuscicapillus*', a genus proposed by Mathews (1912), which also appears on the labels of NMW specimens taken by Bernstein. Use of Morotai (Wallace preferred 'Morty') and their handwriting suggest Bernstein, but this is unconfirmed.

NRM 570190 reached Stockholm in 1866 according to its label, but the museum register indicates 1864 (U. Johansson pers. comm.), and MNHN 1864.350 and 1866.400 arrived in 1864 and 1866, and MHNMON-O-1361 arrived in 1876. These dates mean they could not have been collected by Dumas, Hueting or de Haan. The most likely provenance for MNHN 1866.400 is Bernstein because it was exchanged with Maison Verreaux (see above). ZMB 2000.13881 lacks any information.

Syntypes.—Wallace's (1862, 1869) collections were made prior to 1862, and included the friarbirds procured Allen from which he described *P. fuscicapillus*. Following Art. 73.2 of the Code (ICZN 1999), they must be considered syntypes of *Tropidorhynchus fuscicapillus* Wallace, 1862, because Wallace did not select a single type. Their status does not appear to have been stated on the specimens, and has therefore gone unnoticed in some cases. Interestingly, several published lists of types mention Wallace as their collector (Gadow 1884, Sharpe 1906) whereas Warren & Harrison (1971) named Allen for BMNH 1873.5.12.1010 and the red (syntype) labels on BMNH 1862.9.11.22–23 also specify Allen.

Conclusion

This inventory identified 18 syntypes of Dusky Friarbird, with two other specimens probably sharing this status. This list is still open as it has proved impossible to establish the total number of specimens collected by Allen and analysed by Wallace. Several errors have been corrected in archives and publications, collectors specified for some specimens, and a more thorough analysis might permit reevalutation of the specimens which have no data. Study of specimens of both sexes and all ages demonstrates that the few available illustrations in the literature could lead to incorrect field identifications and confusion with the species' mimic, Dusky-brown Oriole. Finally, the available data confirm that Dusky Friarbird is endemic to Morotai, with no evidence of its presence on the islands of Halmahera or Bacan.

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